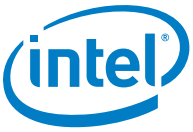
Intel® Development Toolkit for Data Gateways

Out of Box Guide

November 2013



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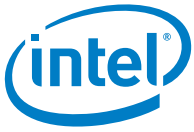


Contents

Introduction 4
Product Documentation 4
Safety Information 4
Kit Contents 5
Out of the Box Expectations 5
Development Toolkit Contents 6
Ports and Antennas 7
System Setup 9
Connecting to the Kontron M2M System via Ethernet 10
Web Interface for Wireless Network Management 11
Software Tools Installation 12
Certifications 13

Introduction

This guide is for smart services developers who are responsible for using the Intel® Development Toolkit for Data Gateways. The guide will explain how to quickly get the hardware set up and the software installed and running.

Product Documentation

For product information, please refer to the following documents:

- Out of Box Guide (this manual)
- User Manual: This document has further details regarding hardware usage and software installation.
- Wind River Intelligent Device Platform XT Programmers Guide: This document has instructions for using the Wind River Intelligent Device Platform XT* software that is included with this kit. This document is available on the host development PC after installation of the software.
- Kontron M2M Smart Services System Warranty, Safety, and Regulatory Information. This pamphlet is included in the kit. It contains safety and regulatory information for the Kontron M2M System* hardware that is a part of the kit.

The latest versions of all documents are available for download from the product's website at http://www.intel.com/datagatewaydevkit

Safety Information

Warning

This product has been designed for service development purposes. Although this product has already been approved by several agencies, compliance with your local regional rules may require additional EMC compliance testing.

Before working with this kit, pay close attention to the safety instructions provided in this *Out of Box Guide* and in the *Kontron M2M Smart Services System Warranty, Safety, and Regulatory Information* pamphlet. It is highly recommended that you follow exactly the assembly instructions detailed in this guide to ensure and maintain compliance with existing product certifications and approvals.

Use only the described, regulated components noted in this guide. Use of other non-approved products or components will void the UL listing and result in non-compliance with product regulations in the regions where this product is sold.

This is a Federal Communications Commission (FCC) Class B device.

See the *Kontron M2M Smart Services System Warranty, Safety and Regulatory Information* pamphlet included in this kit for complete safety and certification information.

Kit Contents

The Intel® Development Toolkit for Data Gateways includes the following:

- One Kontron M2M System.

  Note: The system is manufactured by Kontron, and comes preloaded with a Wind River Intelligent Device Platform XT 1.0 system image.

- One USB flash drive with Wind River Intelligent Device Platform XT 1.0 installation software.
- One power adapter with U.S. and European power cords
- Two 802.11/802.15.4 antennas
- Two 3G antennas with adapters
- Two Micro USB to USB adapter cables
- One Micro HDMI to HDMI adapter cable

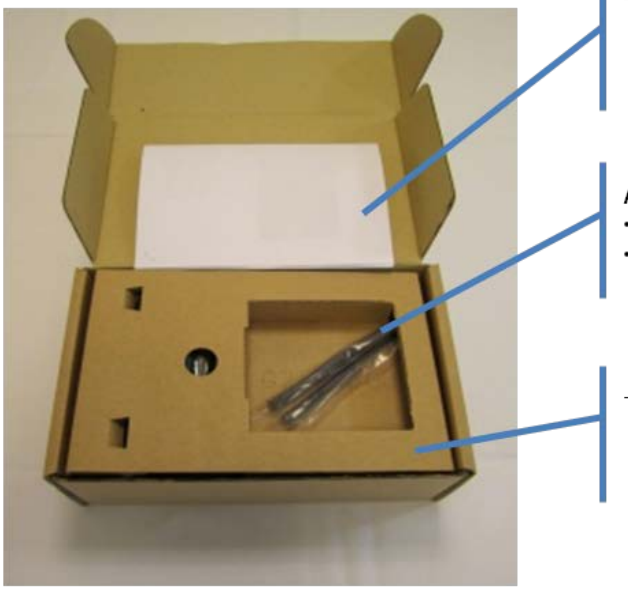
Out of the Box Expectations

The Kontron M2M System is a standalone controller. Firmware development for the controller is supported by a Linux* version of the Wind River Intelligent Device Platform XT 1.0 environment, running on an external Development Host PC. Out of the box, the Kontron M2M System will boot and run the Wind River Intelligent Device Platform software.

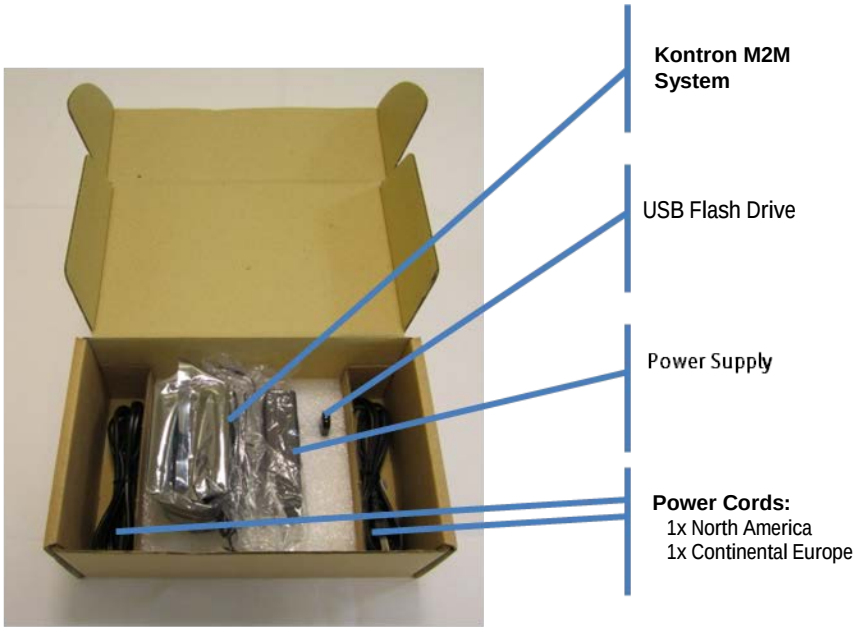
The USB flash drive contains Wind River Intelligent Device Platform XT 1.0 software with a complete set of development tools that can be installed. These tools may be used to modify or rebuild the default Kontron M2M System firmware.

Development Toolkit Contents

The pictures below show the kit contents and their packaging.



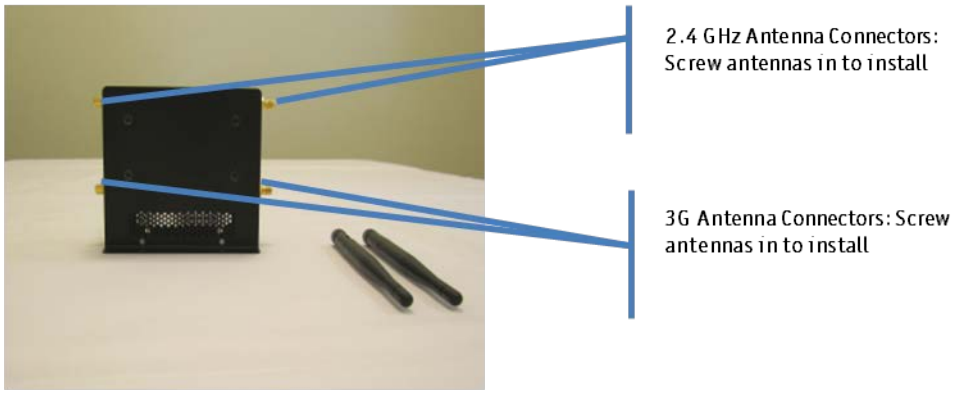
Remove tray by lifting using round hole

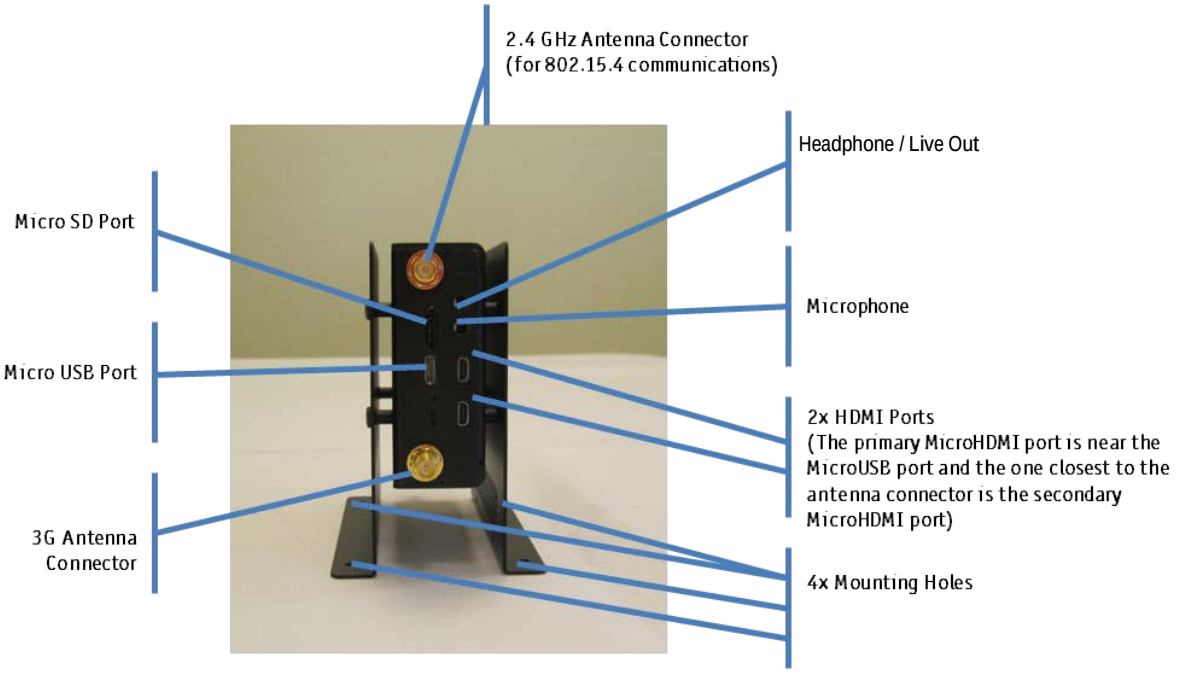


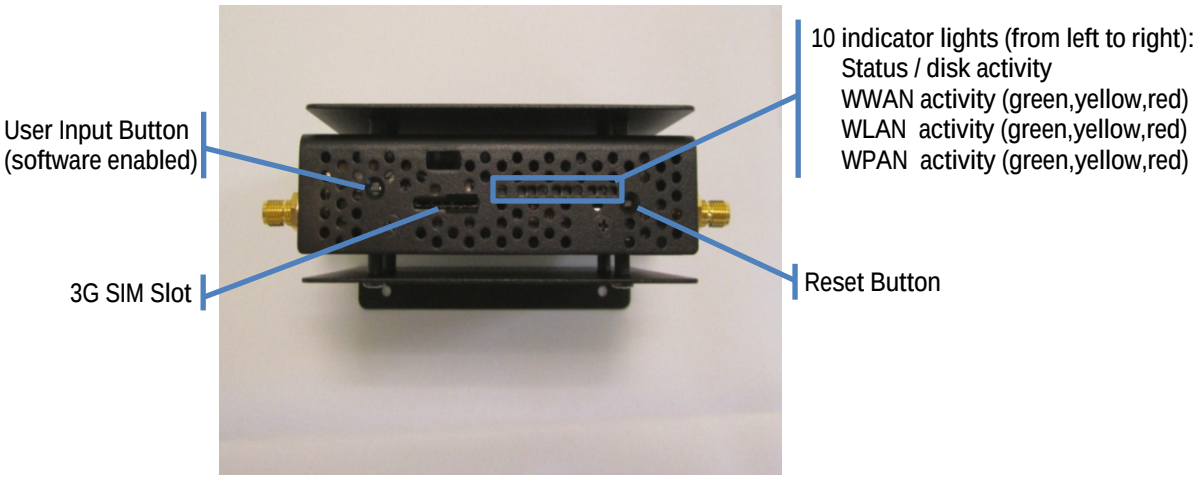
Unpack items

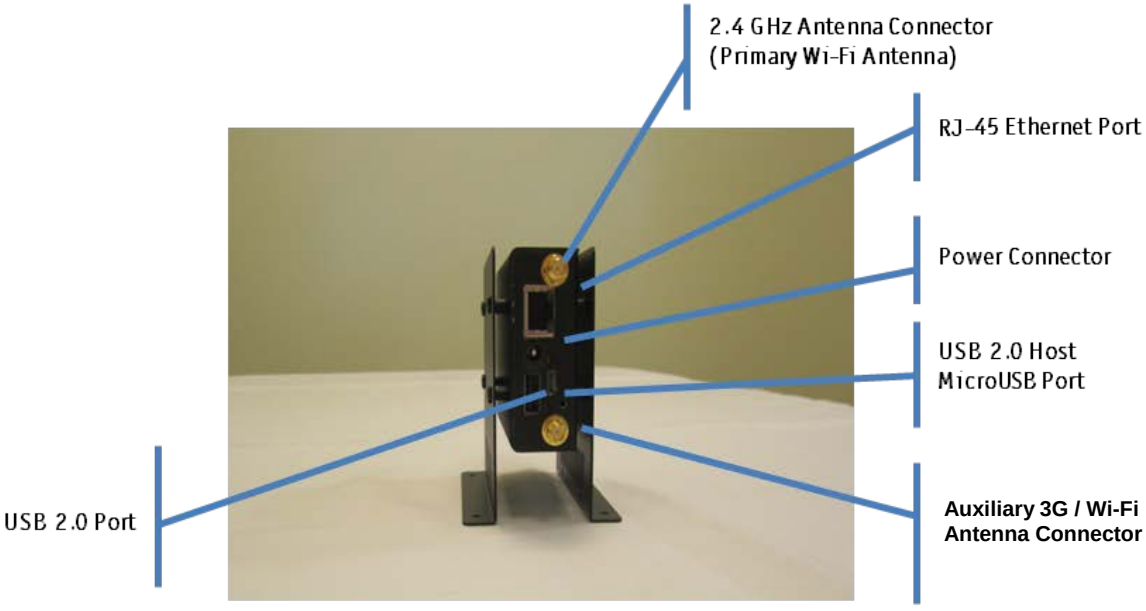
Ports and Antennas

Refer to the figures below for locations of ports and antenna connections.




2.4 GHz Antenna Connector (for 802.15.4 communications)
Headphone / Live Out
Micro SD Port
Microphone
Micro USB Port
2x HDMI Ports (The primary MicroHDMI port is near the MicroUSB port and the one closest to the antenna connector is the secondary MicroHDMI port)
3G Antenna Connector
4x Mounting Holes





Cautions:

1. The Kontron M2M System does not support USB OTG (On-The-Go) operation.

2. There is a small slide switch near the Micro USB Port to enable and disable 5V power to the Micro USB Port. A nearby LED is green if 5V is enabled and amber if 5V is disabled.

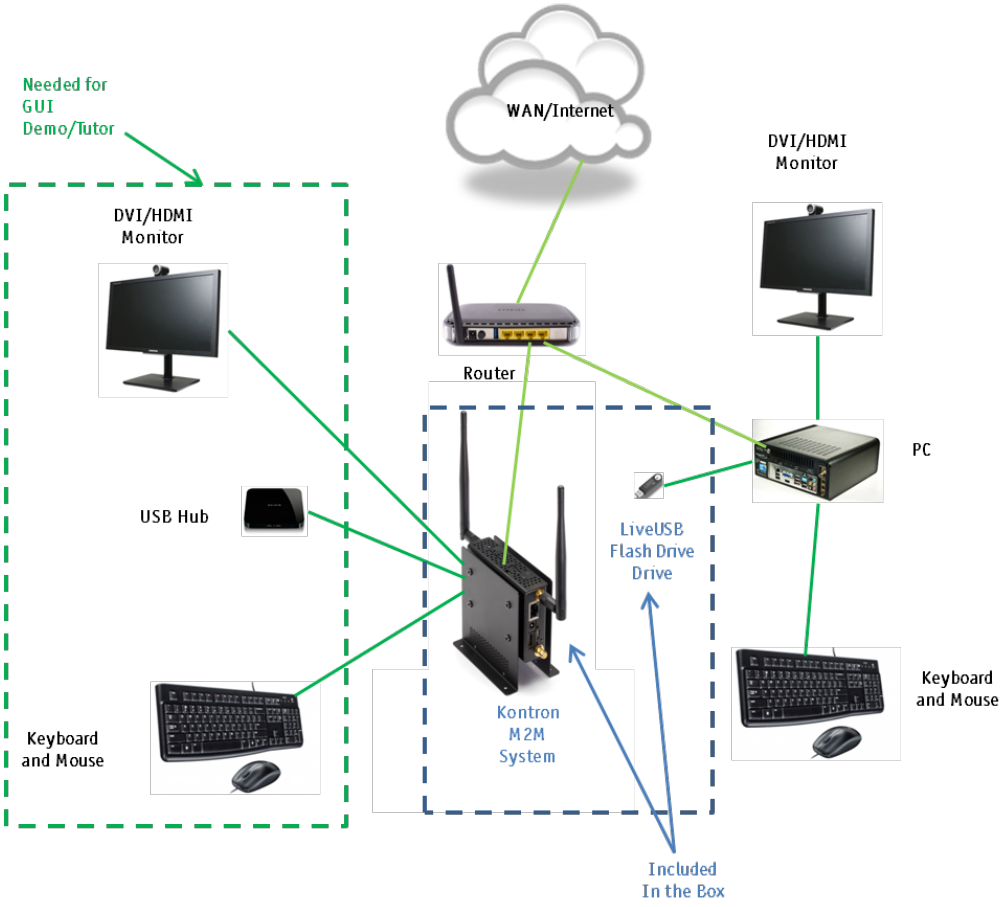
System Setup

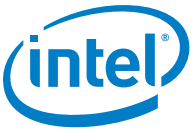
The following diagram depicts the development environment setup for using the Intelligent Device Platform software included with this kit.

Only the power cables for the Intel Kontron M2M System are included in the kit. Cables needed to connect and power the router, monitors, USB hub, PC, keyboards and mice are not included.

Following the diagram:

1. Connect an Ethernet cable between your Development Host and the router.
2. Connect an Ethernet cable between your Kontron M2M System and the router.
3. Connect the router to your network (WAN).
4. Connect a USB keyboard to the Kontron M2M System.
5. Connect the top micro HDMI output of the Kontron M2M System to an HDMI monitor using the included micro HDMI cable.





The USB flash drive contains the Intelligent Device Platform installer, which includes the Intelligent Device Platform XT 1.0, Wind River Linux, the Wind River Workbench Development Suite*, and a board support package for the Kontron M2M System. See the *Software Tools Installation* section below for instructions on how to install the software on a Development Host system.

Connecting to the Kontron M2M System via Ethernet

The steps in this section should be followed to connect a development host PC to the Kontron M2M System to verify that it is functional.

1. Connect the Development Host PC as illustrated in the System Setup section above. (Ethernet cables are not included in the kit.)
2. Power on the Kontron M2M System by attaching the power supply and cord to the system and plugging the system in. There is no on/off button.
3. Exit the Kontron M2M System default Demos screen and enter a login shell by typing "Ctrl+Alt+F2".
4. At the login prompt enter "root" for the login name
5. At the password prompt enter "root" for the password
6. At the input prompt type "ifconfig eth0 172.31.255.1" then press Enter
7. At the input prompt type "ifconfig eth0" then press Enter

   The display should show eth0 settings as follows:

   inet addr:172.31.255.1 Bcast:172.31.255.255 Mask:255.255.0.0
8. Configure the Development Host PC running Linux to a static IP address of : 172.31.255.254

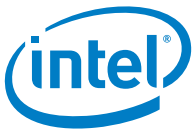
   This can be done using the ifconfig commands shown above. Be sure to specify the correct Ethernet port, as it may not be eth0 for your development host PC.
9. On the Development Host PC running Linux, run the following:

   `ssh –l root 172.31.255.1`

   When asked, enter the following for both the user name and password: `root`

At this point, the user should be logged into the Kontron M2M System.

For further information, please refer to the *Intel® Development Toolkit for Data Gateways User Manual* included in this kit, and the *Wind River Intelligent Device Platform XT Programmer's Guide.* The programmer's guide



is available on the Development Host PC after the installation of the Intelligent Device Platform XT software, or on the Development Toolkit website at http://www.intel.com/datagatewaydevkit.

Web Interface for Wireless Network Management

A web management interface (WebIF) utility is pre-installed on the Kontron M2M System in order to simplify provisioning of the system. Among other things, it allows configuration and management of the following interfaces:

- IP and Network interface
- Wi-Fi* connection
- 3G Mobile connection
- ZigBee* connection
  - This provides basic functionality to start ZigBee as a coordinator and search for devices to pair to.

WebIF can be reached via any browser (for example, Mozilla* or Chrome*), and from any PC or workstation that has a LAN (via the Ethernet port) or Wi-Fi connection to the system. Access to WebIF is not available via the 3G port.

WebIF defaults to the static IP address (192.168.1.1). If you connect via Wi-Fi, the system will provide you (via DHCP) with a suitable IP address. If you are connecting via Ethernet, you will need to configure your Ethernet address appropriately (for example, use 192.168.1.2, netmask 255.255.255.0). Once connected, you can configure the system's interfaces as appropriate.

The WebIF user name and password both default to **admin**. You should change this as soon as possible.

Software Tools Installation

Follow these steps to install the Wind River Intelligent Device Platform Software included in this kit onto a Development Host PC.

Before installing the Wind River Intelligent Device Platform software, please refer to the *Wind River Linux Release Notes*, *System Requirements* section for supported development host Linux versions and for development host hardware and software requirements for each of those supported versions. The *Wind River Linux Release Notes* can be found on the Development Toolkit website at http://www.intel.com/datagatewaydevkit.

The activation code below is for a 30-day temporary license. To obtain a permanent license the developer must register at http://www.intel.com/datagatewaydevkit.

Note: You will need Internet access to install this product.

1. To install, insert the Wind River Intelligent Device Platform XT Software USB flash drive and run the setup file located at the root of the USB:

   For example, for Linux O.S. run: `./setup_linux`

2. Follow the on-screen installation instructions as follows:

   a) At the “Online update settings” screen, accept all items that are selected by default.

   b) When asked to choose an Activation Type, select Temporary activation.

   c) When asked for a License Authorization Code (LAC), enter: **676023-N3QQ-IPCLS**, or your permanent license code if available.

   d) At the Choose Installation Filters screen, Intel is selected by default.

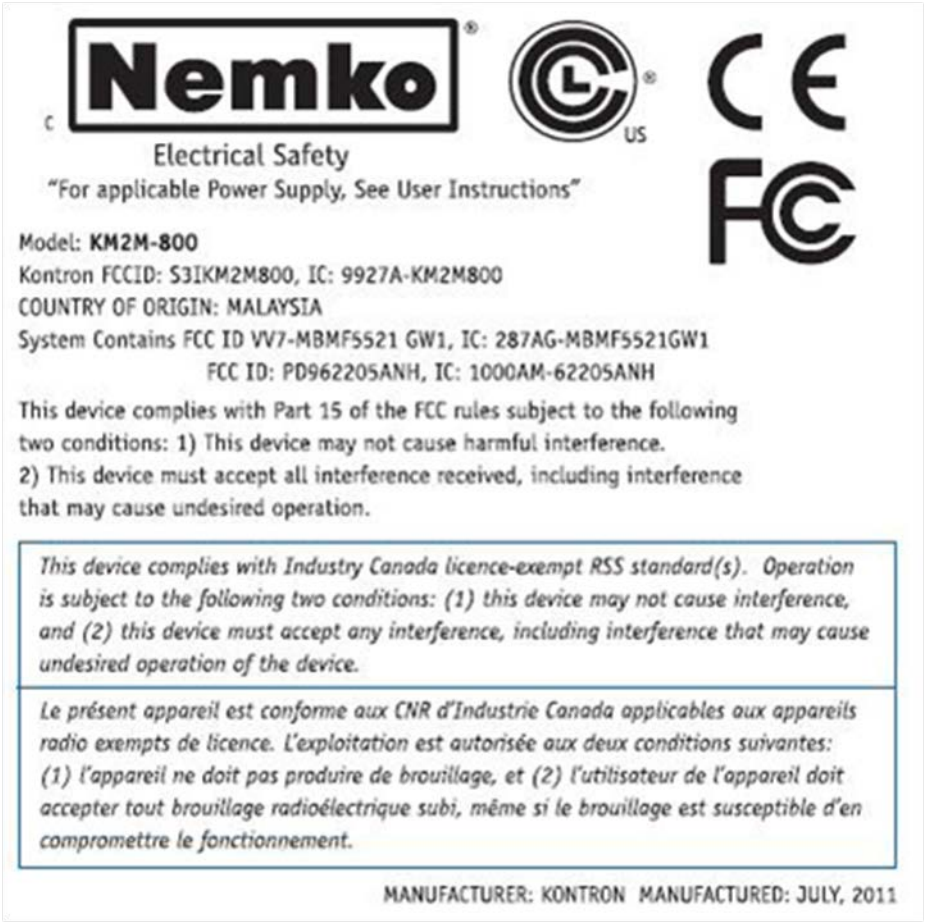
   e) At the Select Products screen, expand the list to see the components to be installed.

   f) Install all products and features that are selected by default.

3. Launch the product.

Certifications

The following certifications apply to the Kontron M2M System, which is manufactured by Kontron.


Nemko
Electrical Safety
"For applicable Power Supply, See User Instructions"
Model: KM2M-800
Kontron FCCID: S3IKM2M800, IC: 9927A-KM2M800
COUNTRY OF ORIGIN: MALAYSIA
System Contains FCC ID VV7-MBMF5521 GW1, IC: 287AG-MBMF5521GW1
FCC ID: PD962205ANH, IC: 1000AM-62205ANH
This device complies with Part 15 of the FCC rules subject to the following two conditions: 1) This device may not cause harmful interference.
2) This device must accept all interference received, including interference that may cause undesired operation.
This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
MANUFACTURER: KONTRON MANUFACTURED: JULY, 2011

For further information, refer to the Kontron M2M Smart Services System Warranty, Safety, and Regulatory Information pamphlet included in this kit.

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